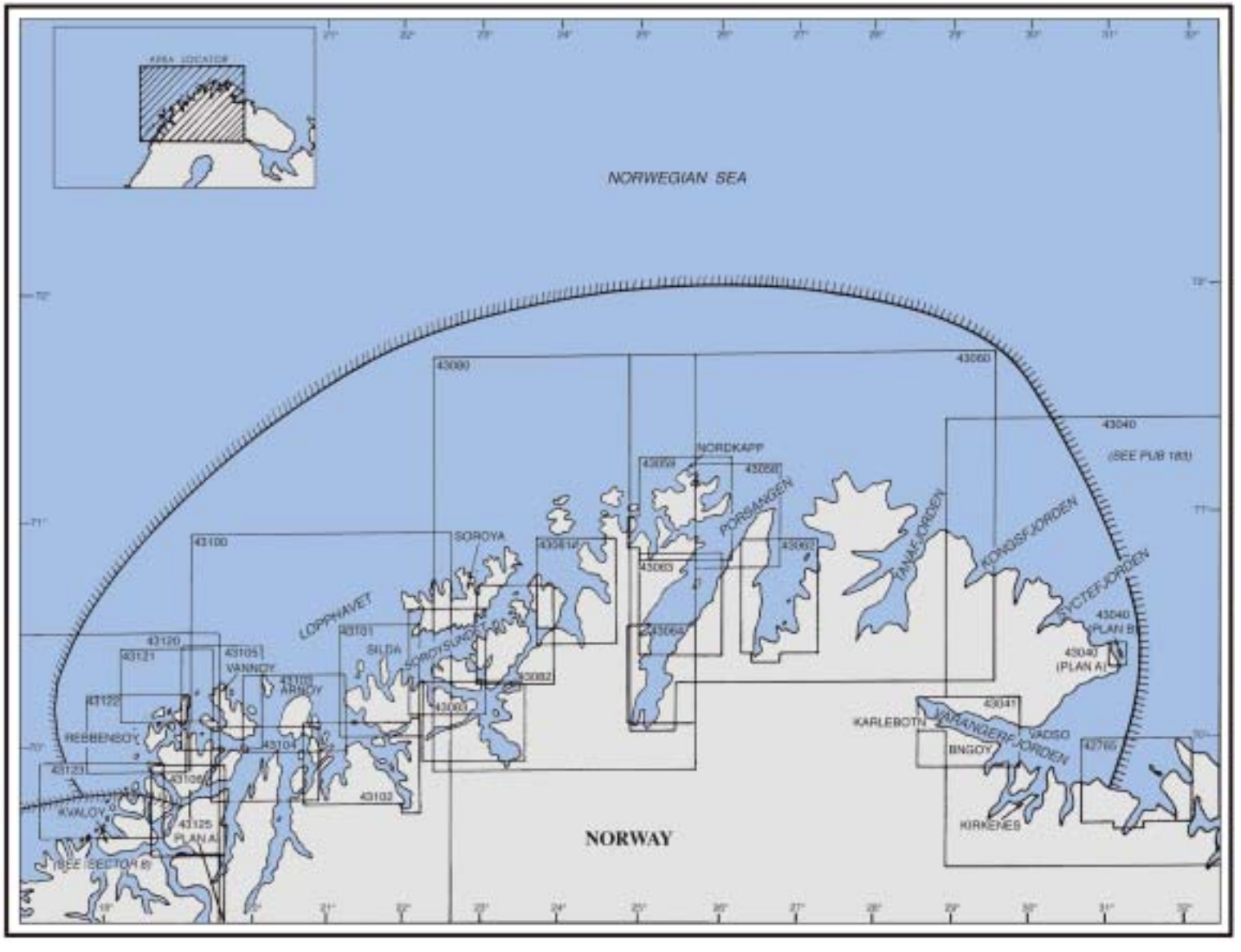
Click on " See Sector" to be hotlinked to that Sector.



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **9** — CHART INFORMATION

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SECTOR 9

THE COAST OF NORWAY FROM MALANGEN TO VARANGERFJORDEN

Plan.—This section describes the N coast of Norway from Malangen to Varangerfjorden. It describes the outer route, and inner route or Indreleia, and the inner fjords between Tromso and Porsangerfjorden. The fjords and ports in the vicinity of Varangerfjorden are also described.

General Remarks

9.1 Winds—Weather.—Weather reports for this area are frequently broadcast. The area is often affected by travelling N Atlantic depressions and associated fronts. It is, therefore, a stormy area, especially during the winter months.

The climate in the landlocked places of the inner reaches of the fjords and Indrelia is extreme and differs from the relatively equable climate on the outlying islands. Therefore, during most of the year, rapid decreases or increases in air temperature when entering or leaving the fjords and Indreleia may be experienced.

At Tromso, the wind is frequently from the S to SW from October through April, and from the N to NE from June through August. The mean force is between 2 and 3 in mid-winter and below force 2 from July through September.

At Elvebakken, near Alta, there is little seasonal variation in wind force, and it is, most often, a force 2. From October through March in this area, the wind is mostly from the S to SE; during June, July, and August, it is mostly from the W to NW. Gales (force 8) are infrequent. The highest frequency during winter is one per month. Gale winds are practically unknown during the summer months.

At Vardo, from October through March,the wind is mostly from the S to W; from May through August, it is usually from the S to SE. The wind is strongest in January and February, when the average force is between 4 and 5 and is lightest in August, when the average is about a force 3. Gales (force 8) are frequent in January and February. They occur during these months on an average of about 6 days per month, and occur during the months of May through August on an average of less than one day per month.

Fog at sea is not particularly frequent; however, visiblity may be serverly reduced during periods of heavy snowfall. The lack of daylight in winter adds to the problem of poor visibility.

Outer Route—Malangen to Hammerfest

9.2 Between Malangen, the approach to Tromso, and Hammerfest, about 100 miles NE, the outside track along the islands leads to Soroysund. Soroysund is deep and unencumbered, and is the best approach to Hammerfest from seaward. Because off-lying dangers extend well off the coast, and because during the summer months there is the likelihood of fog and strong NW winds, it is recommended that vessels from the S, bound for Hammerfest, or vessels that intend rounding Nordkapp should navigate well offshore, and give the coast N of Malangen a wide berth. Vessels should make landfall in the vicinity of the island of Soroya (70˚35'N., 22˚40'E.), located about 85 miles WSW of Nordkapp (71˚10'N., 25˚47'E.).

A chain of outlying islets and rocks, forming one of the most distinctive features on the Norwegian coast, terminates about 5 miles N of the N extremity of the N island of Kvaloy.

To the E, unmarked dangers extend as far as 20 miles N of Vannoy, Fugloy, and Arnoy.

Nordvestbanken, the area and position of which can best be seen on chart, lies about 39 miles NW of the NW side of Ringvassoy. Between the SW side of this bank and **Malangsgrunnen** (69˚58'N., 17˚30'E.), the bank E of Ringvassoy, there is a deep fissure, which has depths of over 183m at a distance of about 0.5 to 2 miles from the outer dangers W of Ribbenesoy and Grotoy. This section of the coast, as in the case farther S, is extremely dangerous to approach in foggy weather, even when giving careful attention to the soundings.

There are numerous navigational aids, both on the islands and on the coast in this region, to assist the navigator mark his position. Openings to fjords and channels proves to be a useful means of identification. However, mariners new to this part of the Norwegian coast may have difficulty identifying landmarks and visually locating separations between land masses from offshore. When seen from a distance, a group of islands may appear as one continuous land mass that is capped by many sharp peaks.

9.3 Ringvassoy (69˚55'N., 19˚10'E.), the largest of the islands fronting the mainland, lies with its W end about 25 miles NE of Malangen. To the N of Ringvassoy are the islands of Ribbenesoy, Grotoy, and Kvaloy. To the E of Kvaloy are Vannoy, Fugloy, and Arnoy. Southeast of Arnoy is Kvaenangen, which indents the coast to the SE. The large peninsula on the NE side of Kvaenangen is a mass of mountains, with Svartfjelljokelen attaining a height of 1,218m.

This mountain exposes flat snow-covered surfaces from which glaciers extend down on almost every side to nearly the level of the sea. The peninsula itself is indented by fjords on all sides.

Sandoya (70˚02'N., 18˚32'E.) lies about 2 miles W of Ribbenesoy. The N end of the island makes a steep descent toward the sea. A beacon stands on its summit.

Sorfugloya lies about 3 miles NNW of Sandoya and on an E bearing appears as an almost perfect pyramid.

Ribbenesoy lies close NW of Ringvassoy and is separated from it by Skagoys channel. The S part of Ribbenesoy is undulating, and a white sandy beach about 2 miles from the N end of the island is conspicuous. Mulen, the N extremity of the island, stands out from the background because of its high, black, precipitous sides.

Andammen, an island, lies close N of Ribbenesoy. A light is shown from the NW extremity of Andammen.

9.4 Grotoya (70˚10'N., 18˚52'E.) lies about 1 mile N of Andammen. The island has hills almost equal in elevation and

a somewhat precipitous descent on its N side. A light is shown from its NE extremity. The island of Maasvaer lies 1 mile E of Grotoy. A light is shown close off the SE coast of Maasvaer. Kvaloy is about 9 miles in length with a least width of 3 miles, and lies about 2 miles N of Ringvassoy.

A conspicuous mountain stands on the N and S ends of the islands. Helgoy, a smaller island which has a flat-topped mountainous ridge, lies about 3 miles SE of Kvaloy. A light is shown close off the SW coast of Helgoy.

Vannoy, a large island which is flat-topped and precipitous towards the sea, lies 3 miles E of Helgoy. Tvinaren, 759m high, is a conspicuous peak on the N side of the island. The S part of the island is mountainous, with heights of more than 914m. A number of islets lie off the E and NE sides of the island.

Torsvag Light (70˚15'N., 19˚30'E.) is shown from a low tower attached to a building, 10m in height, standing on Koja Islet off the NW side of Vannoy. A Decca radio mast, 140m in height, stands about 201m N of the light.

Fugloya (70˚16'N., 20˚15'E.) lies about 4 miles NE of Vannoy. When Fugloysveet, the channel W of Fugloy, is open, Fugloya will appear quite detached and is then a very conspicuous landmark, identifiable by its pointed summit which is precipitous on its S and W sides. Fugloya Kalven, which shows a light, lies close off the NW extremity of Fugloy.

Caution.—A firing area is established N of Vannoy in the seaward approaches to Fugloysveet.

Arnoy lies with its N end 9 miles E of the summit of Fugloy. The island is very steep on its N and W sides, and the cliffs of the N part of its W side are dark red. A large and conspicuous radio tower is situated on a summit in the SW part of Arnoy. Navigational aids are shown on all sides of the island and can best be seen on the chart. Laukoy, an island, lies close off the E coast of Arnoy. A number of islands and islets lie to the SE and S of Arnoy. Loppa lies about 15 miles NE of Arnoy and on the S side of the immediate approach to Soroysund. The island appears dark and low with a gradual slope on its N side.

9.5 Silda (70˚20'N., 21˚45'E.) lies 5 miles E of Loppa and shows a light from its N extremity. A light is also shown from the S end of Silda. Maroy, an islet, lies close off the S extremity of Silda.

Tides—Currents.—From abreast the S end of Ribbenesoy, the tidal currents set NE and into the various fjords with the rising tides and SW and out of the fjords with the falling tides. The NE current may attain a velocity of 4 knots. West of Sor Fugloya, the SW current is only occasionally discernible.

At Kvaloy, the tidal currents set E with the rising tide and W with the falling tide. The tidal current may attain a velocity of 1 knot E of Kvaloy and about 4 knots at Flatvoer, the group of low islets extending about 2 miles N of Kvaloy.

Lopphavet (70˚30'N., 21˚00'E.), an area N of Fugloya, Arnoy and W of Soroya. The depths vary between 0 and 400m. N of Fugloya to about 18 miles offshore; there are three shoal areas. East and W of the shoals, the depth is more than 300m.

Northwest and W of Soroya, there is a major shoal area, with several lesser shoals. The slope outside of these is very steep.

The current may be quite strong at the slopes in the entire area.

With the waves coming from NE to SW, several refraction centers occur on the leeward side of the shoal area. Interaction between waves and current may cause breakers in the area.

Soroysund is entered between the SW end of Soroya and the NW end of Stjernoy. The entrance has a width of about 8 miles. The fairway is deep and free of dangers. Lights are shown on both sides of Soroysund and can best be seen on the area charts. The narrowest part of Soroysund is marked by an islet which shows a light and is known as Vatnholmen, and lies close off the SE coast of Soroya.

After passing SE of Vatnholmen, vessels should steer for Haja, 13 miles NE, giving the NW end of Seiland a fair berth. After passing between Haja and the N end of Seiland, course may be steered for Hammerfest harbor. The S extremity of Hjelmen, bearing about 262˚ astern, and just open S of Haja, is an excellent mark for making Hammerfest, which is not very easily distinguished.

9.6 Hammerfest (70˚40'N., 23˚40'E.) (World Port Index No. 20920), the world's northernmost town, is located on the W coast of the island of Kvaloy. The harbor is situated close NW of the town. This ice-free harbor is about 0.5 mile in extent and is surrounded by mountains except in the SW to W section. Winds may send heavy sea into this section.

Charted depths in the harbor are from 18.3 to 37m a short distance offshore. A light is shown from the head of a breakwater which extends SE from the end of Fuglenes. A light is shown on the mole on the SE side of the harbor entrance.

The deepest berth in the harbor is at Fugleneset outer arm, which has depths of 11.9 to 14.8m.

Pilotage.—Pilotage is compulsory for vessels over 300 grt. The pilot boards off Melkoy, 2.5 miles off Hammerfest.

Depth—Limitations.—The main pier facilities are, as follows:

Quay No.	Length	Depth
1	138m	7.8-13.0m
2	75m	6.8-13.0m
3	46m	2.6-6.1m

There are a number of smaller berths in the harbor which are used mainly by vessels of moderate size. Norske Shell, Esso, and Mobil operate an oil berth for ships up to 183m in length and drawing not more than 11m. Vessels may berth at night at this berth.

Larger vessels with deeper drafts may enter the harbor and use the anchorage.

Anchorage.—Large vessels may ride securely, in depths of 27.4 to 45.7m, off the SE side of Fuglenes, which is the best anchorage in the harbor. Five mooring buoys for securing the stern lines of vessels at anchor, are located in well-sheltered positions on both sides of the harbor. Anchoring is appointed by a state pilot or a harbor pilot.

The smaller inner harbor can accommodate a number of moderate sized vessels. Although it is exposed to W winds, the harbor is secure. Depths of 9.1 to 31m are found in this

Hammerfest

anchorage. Vessels making a long stay should anchor off the SE side of Fuglenes where it is more protected and clear of harbor traffic.

Indreleia—Tromso to Hammerfest

9.7 From Tromso, the fairway of Indreleia continues NE to the W approach to Soroysund, and then leads E and NE through Soroysund to Hammerfest. Immediately N of Tromso, the channel is sheltered by the large islands of Kvaloy and Ringvassoy. Tromsoysund, between the island of Tromsoy and the mainland, is shoal on both sides of the channel. However, the fairway is free of dangers, and can be navigated by large vessels at HW. Indreleia leads E from Tromsoysund through Grotsund to Ullsfjorden. Grotsund is also free of dangers in mid-channel.

This route is well-covered by navigational aids, which can be best seen on the chart. Tidal currents are weak in Grotsund, although during bad weather a considerable sea may be raised.

From the E end of Grotsund, the track of Indreleia leads through the N part of Ullsfjorden. The channel is broad and deep and extends in a general SSW direction from abreast the SE end of Karlsoy. After rounding Lyngstuva, the N extremity of the rugged promontory separating Ullsfjorden from Lyngsfjorden to the E, Indreleia passes through Kagsund, between the SE end of Arnoy and the N end of Kagen, where smooth water will be experienced.

The main track of Indreleia leads from Kagsund NNE across Kvaenangenfjorden and then rounds Brynilen, an islet close to the coast, about 14 miles NE of the N extremity of Kagen island. From Brynilen, the track passes SE of Loppakalven, the small island close SW of the S end of Loppa Island, then leads SE of Loppa into the W approach to Soroysund.

Indreleia—Stiernsund to Hammerfest

9.8 An inner channel leads from the SW end of Soroysund through Stjernsund, Vargsund, Kvalsund, and Sammelsund, uniting with the main track of Indreleia N of Kvaloy. This channel is smoother, though longer than the main channel in Soroysund, and is often used in bad weather.

Vessels bound for Hammerfest can pass W of Kvaloy through Straumen, the narrows between Kvaloy and the NE end of Seiland.

Stjernsund (70˚14'N., 22˚44'E.) is very deep and there are no known dangers more than 0.2 mile offshore on both sides. The wind in Stjernsund is very unpredictable. Usually it blows either in or out of the sound. At times, violent gale winds blow through Stjernsund. Vessels proceeding through the sound may expect a deflection of the magnetic compass.

Kvalsund and Sammelsund are deep and free of dangers. Kvalsund is narrow but it may be used by large vessels. Several submarine cables are laid across both sounds.

Ytre Simavik and Indre Simavik lie in the central part of Stjernsund and on its N shore. Vessels can anchor in both places. The depth of the water is about 25m, and there is a clay bottom.

Oksfjorden (70˚12'N., 22˚18'E.) lies on the S side of the W end of Stjernsund. It trends S for about 8 miles, then ESE for 5 miles. The fjord is deep and free of dangers in the fairway.

The shores are sparsely populated, except for the port of Oksfjorden on its NE shore. The fjord is a place of refuge to vessels during bad weather, as the fjord can be calm when a gale wind is blowing outside.

Anchorage is afforded near the village of Vassdalsbotn, about 0.3 mile S of the port of Oksfjorden. The anchorage has a depth of about 20m, and has good holding ground.

Oksfjord (70˚14'N., 22˚21'E.) (World Port Index No. 21120) lies 1 mile S of the E entrance point to the fjord. There are several quays in the port, with depths of up to 9.8m alongside. There is also a boat harbor in the port. Coastal vessels call here regularly.

A light is shown from a breakwater at the harbor entrance. There are a number of anchorages S of the port.

9.9 Ullsfjorden (69˚50'N., 19˚52'E.) is a deep fjord; with its continuation, Sorfjorden, it extends for a distance of about 40 miles in a SSW direction from abeam the S end of Karlsoy. The fjord is open to the sea, and N and NW winds send in a very heavy sea during autumn and winter. The inner part of Sorfjorden, for a distance of about 6 miles from its head, is frequently ice-bound during the winter months.

An overhead cable, with a vertical clearance of 25m, crosses the entrance to Sorfjorden. The only shoal in the fairway of Ullsfjorden is Nisegrunn, which lies 9.25 miles S of Grotsund Light. Several dangers encumber Sorfjorden and can best be seen on chart.

Lyngsfjorden (69˚40'N., 20˚25'E.) lies E of Ullsfjorden, the two being separated by a high and rugged promontory.

Lyngsfjorden is steep on both sides and is very deep. The fjord extends about 50 miles in a SW direction; its end is known as Storfjorden. There are two anchorages on the W side of Storfjorden near its end. The fjord is well marked by navigational aids on both sides. The island of Uloy lies on the E side of the fjord near its entrance. Kafjorden is located on the E side of the fjord and extends 10 miles in a SE direction. Anchorage can be taken on the S side of Kafjorden, 3.5 miles within the entrance.

Altafjorden (70˚05'N., 23˚06'E.), is a large, deep fjord which indents the mainland for about 20 miles and lies S of the islands of Stjernoy and Seiland. The shores of the fjord are irregular. There are several large bays and small inlets. Langfjorden, on the W side of the fjord, is the only branch of any extent. Altafjorden is accessible to large vessels.

The weather in the fjord is usually calm. Kafjorden and Rafsbotn lie at the head of the fjord. Aroy, a rocky island, lies on the E side of Altafjorden.

Alta (69˚58'N., 23˚15'E.) (World Port Index No. 21130) is a district, which consists of three close settlements of Bossekop, Bukta, and Elvebakken. At Bossekop, vessels can anchor in the bay S of the cape, in 20 to 30m, sand and clay bottom. The harbor is sheltered against N and E winds. Strong W and SW winds make it unsafe.

The harbor consists of two wharves. One is 51m in length, with a depth of 10 to 11m alongside; the other is 36m in length, with a depth of 5.9 to 6.4m alongside.

Bukta is the best anchorage in Alta. Vessels lie at anchor in all weather, good holding ground. The port consists of five wharves. Berthing information is given in the accompanying table.

Berth	Length	Depth
Frionor Wharf	61m	7 to 8.5m
Norol Bunkering Wharf	14m	4.5m
Shell Bunkering Wharf	12m	6m
Esso Wharf	10m	5.5m
Marine Wharf		
East Berth	62m	11.2 to 13m
Inside Berth	49m	7.7m

An overhead cable, with a clearance of 7m, crosses the entrance to Elvebakken.

Elvebakken affords anchorage for smaller vessels. These are only fair anchorages and they are not recommended.

9.10 Talvik (70˚03'N., 22˚58'E.) (World Port Index No. 21140) lies on the W side of Altafjorden, in a sheltered bay. It affords anchorage to small vessels with local knowledge, in a depth of about 18m, about 0.2 mile W of the N entrance point of the bay. Mooring rings are available, and vessels can secure to dolphins on the N side of the cove.

There are two quays, with depths of 4.9 to 5.8m alongside. Coastal vessels mainly call at the port.

Rafsbotn lies on the E side of Altafjorden, near its head. From its head for a distance of about 2 miles W, the bay is frequently ice-bound during the winter months. This large bay affords anchorage for small vessels with local knowledge, off the NW side of Rafsholmen, in depths of 18.3 to 42m. Coastal vessels call here regularly.

Langfjorden is situated on the NW coast of Altafjorden, near the W entrance point. The fjord extends about 16 miles in a WSW direction and is free of dangers in the fairway. Ytre Koven, an inlet on the NW side of the fjord, affords anchorage to small vessels with local knowledge.

Storsandnes, a village on the E side of the fjord, has a quay, with a depth of 7.3m alongside. There is anchorage close N of the quay; mooring rings are available.

Coastal vessels call here. Vessels with local knowledge may anchor in Langfjordbotn, the head of Langfjorden, in depths of 12.8 to 20.1m. Langfjorden is well marked by navigational aids on both its shores.

Vargsund (70˚22'N., 23˚30'E.) lies NE of the E entrance point to Altafjorden. The sound is deep in the fairway and free of dangers. From its entrance the sound runs NE for about 14 miles and then turns N for 9 miles where the sound narrows to about 0.5 mile at its N entrance, 4 miles SSW of Hammerfest.

The sound affords anchorage on both sides to vessels with local knowledge. The sound is well marked by navigational aids.

Outer Route—Soroya to Nordkapp

9.11 From the conspicuous headland surmounted by Fuglen at the NW end of Soroya, the coast of this island trends in an ENE direction and is not clearly distinguishable until a vessel is N of the island. The N coast of Soroya is high and presents a broken appearance of bold and steep headlands separated by inlets which deeply indent the coast. Close off the NW extremity of the island, the coast is indented by Breivikfjorden and Markjeila, a smaller inlet.

Breivik (70˚35'N., 22˚08'E.) (World Port Index No. 20940) lies on the NW side of Breivikfjorden, on the NW coast of the

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island of Soroya. Vessels of moderate size can anchor off the port NW of Breivik light, in depths of from 7 to 12m, loose sand. Vessels may obtain fairly good anchorage off the N shore of the fjord, about 3 miles E of Breivik Light, in depths of from 27.4 to 31m, sand. The port has a quay on the N side of a mole with a depth of 2.4m alongside.

Sorvaer (70˚38'N., 21˚59'E.) (World Port Index No. 20930) is a large fishing port on the N side of the entrance to Markjeila. The approach from the SSW on the leading lights to Sorvear is encumbered with islets and shoals, some of which are marked, and the position of which can best be seen on the area chart. Breakwaters built between islets extend SW, where a light stands on the W breakwater head.

The port has a number of quays with depths of up to 4m. The port is used mainly by coastal vessels. Small vessels may anchor off the port, in depths of from 6 to 20m.

Rolvsoya (70˚58'N., 24˚00'E.) lies about 14 miles NE of Soroya. The island is indented on all sides. Kallneringen, at the NW end of the island, attains a height of 334m. Revsholmen and Skipsholmen, two islets, lie near the middle of the broad channel between Soroya and Rolvsoya. The islets are very prominent.

Ingoya (71˚04'N., 24˚04'E.) lies N of Rolvsoya. It is indented on all sides and quite mountainous. The harbor is reached by passing between Avloysninga and a rock, awash, about 0.1 mile N and marked by an iron perch, off the W end of Langholmen.

Fruholmen Light (71˚06'N., 24˚00'E.) is shown from a tower,18m in height, standing off the NW coast of the island. A racon is located at the light tower. There is an anchorage for small vessels with local knowledge off the N side of Ingoya.

9.12 Hjelmsoya (71˚04'N., 24˚43'E.) is located about 9 miles E of Ingoya. The island is mountainous and conspicuous from a considerable distance. The N coast of Hjelmsoya is very steep. About 3 miles NE of the summit is a rocky pinnacle which rises perpendicularly from the sea and is easily identified from the NE. Akkarfjorden lies on the NW side of the island and extends about 2 miles SE. A reef extends up to 183m from the shore of this fjord. A light is shown on the NE side of the fjord.

Good anchorage can be obtained, in a depth of 10.1m, off Sandvik, a village on the W side of the fjord, about 1 mile SSW of the light.

Masoya (71˚01'N., 25˚00'E.) is located about 4 miles SE of Hjelmsoya. The island is indented on all sides. Kalven, an islet which shows a light, lies about 0.5 mile NNW of the NW extremity of Masoya. Ostervag, on the SE side of the island, affords anchorage to small vessels near its head, in a depth of 3.7m, good holding ground. Coastal vessels call here.

Mageroya (71˚03'N., 25˚40'E.) is located about 4 miles E of the NE extremity of Masoya. The island is large and indented on all sides. The coastline is fringed by a reef close offshore. The NW coast of the island is penetrated for about 6 miles by Tufjorden, which is desolate and affords no anchorage. Nordkapp is the highest and most prominent headland on the N coast of Mageroya.

The cape is a bold headland which rises in sheer walls of dark rock to a flat barren plateau. Knivskjerodden, which shows a light, lies 2.25 miles NNW of Nordkapp and forms the N extremity of Mageroya. The point is low and much less conspicuous then Nordkapp.

Kamoyfjorden (71˚04'N., 26˚04'E.) lies on the NE side of Mageroy. The fjord is indented near its head by three small fjords. Vessels of moderate size can anchor in sand, with mooring rings available, between Kamoyvaer and the SW side of Store Kamoy, in depths from 9 to 23.8m, about 0.2 mile ESE of Kamoyfjorden light.

9.13 Honningsvag (70˚59'N., 26˚00'E.) (World Port Index No. 20800) is a large fishing station located on the SE side of Mageroya.

Depths—Limitations.—The largest quay, on the N side of the entrance, has three berthing side,s with depths of up to 10.1m alongside. There are also a number of smaller quays, with depths of up to 7m alongside. The bunkering wharf is 63m long and has a depth of 13m alongside.

Aspect.—A gray church and a large building close by the church are very prominent landmarks from seaward.

The approach and entrance to the harbor are well-marked by navigational aids. A number of rocks and foul ground are marked by iron perches and spar buoys. The harbor is excellent, though small.

Pilotage.—Vessels over 200 grt must use a harbor pilot, which can be ordered from the harbor office. Vessels should request a pilot 24 hours in advance. Generally two pilots board vessels about 1 mile S of Honningsvag Light.

Anchorage.—Vessels should anchor W of a straight line between Klubskjeret Light and the spar buoy on Holmegrunnen, and N of a straight line extending E from Rosmaalneset, a point about 0.5 mile NW of Klubskjeret light, in depths of 29.3 to 49.4m.

9.14 Sarnesfjorden (70˚58'N., 25˚45'E.) lies on the S side of Mageroya, about 4 miles W of Honningsvag. Altesula, an island, lies in the entrance to the fjord. The island is fringed by a reef, which extends about 183m N from its NW end.

A light is shown from the SE extremity of Altesula. Litle Altesula, an islet, lies about 0.5 mile N from the N extremity of Altesula. Kobbholet, an inlet on the W side of Sarnesfjorden, is well sheltered and affords anchorage to vessels with local knowledge, in depths of 25.6 to 42.1m, good holding ground, about 0.2 mile W of the S entrance point of the inlet. A bridge, with a vertical clearance of 10m, crosses the entrance of the inlet.

There is also anchorage between Altesula and Litle Altesula, in depths of 12.8 to 29.3m.

Helnes Light (71˚04'N., 26˚14'E.) is shown from a low tower at the E end of Mageroy. A racon and a radiobeacon are located at the light tower.

Indreleia—Hammerfest to Honningsvag

9.15 From the NE end of Soroysund to Mageroya, about 36 miles ENE, Indreleia is mostly unsheltered. The route is exposed off the N ends of Kvaloy and Havoy, which lies about 22 miles NE of the N end of Kvaloy; the currents and heavy sea may render it difficult for small vessels to weather these conditions. Indreleia terminates at the N end of Porsanger-

Courtesy of Bill Fry

Nordkapp

Courtesy of Paul Kerrien

Approach to Honningsvag

Courtesy of Paul Kerrien

Approach to Honningsvag

fjorden, where vessels can proceed to the open sea or Honningsvag.

From Hammerfest, a northbound vessel in Indreleia should shape course to pass about 0.5 mile S and W of the small island of Melkoya, on which a light is shown, and then proceed N in mid-channel through Soroysund, which is free of dangers in the fairway.

From the NE end of Soroysund, Indreleia passes across an open arm of the sea for about 12 miles and then continues NE through the exposed Rolvsoysund, between the SE side of Rolvsoya and the small islands off the mainland. A light is shown from the SE side of Rolvsoya.

From abeam of Havoygavlen Light, located on the NW extremity of Havoy, Indreleia leads SE through Breisund. The sound is about 2 miles wide. The depth in the channel is between 30 and 150m. There are several shoals in the area with depths from 30 to 70m.

In Breidsund, there are special wave directions from N to NW which create rough sea; with W currents broken surf has been observed in the channel. The current is due primarily to the tidal current and is estimated to reach between 1 and 2 knots. By Rolvsoyh, the sea becomes especially rough when the wind blows from the N to NE. In both cases the wind and the waves drive straight in from the open sea.

Northwest of Halvoygavlen there are three shoals with depths between about 30 and 50m. It is noted that from there and in toward Gavlodden, the sea is particularly rough, which

appears to be associated with the shoals and the "corner effect" of the headland.

There is a big difference between the flood and the ebb in the area and it is noticed that the sea is roughest on the ebb.

After passing through Breisund, Indreleia leads into Masoysund. Submarine cables are laid across Rolvsoysund, Breisund, and Masoysund.

9.16 Masoysund (70˚59'N., 25˚01'E.) lies between the mainland and the S side of Masoya. The sound is about 1 mile wide and is free from dangers in the fairway.

The tidal currents in mid-channel set E from half rising tide to half falling tide, the turn of the current usually occurs at the times of HW and LW, setting E with the rising tide and W with the falling tide. The currents may attain a velocity of from 3 to 4 knots. A light is shown on the S extremity of Masoya.

Mageroysund, the continuation of Indreleia from Masoysund, leads SE and then E. The channel, though narrow, is free from dangers, and it can be navigated by larger vessels.

A submarine cable crosses the sound about 2 miles from the entrance. The tidal currents set with strength through Mageroysund; at HW they may attain a velocity of 5 to 6 knots. A light is shown on the S side of the NW entrance to Mageroysund. A light is also shown on the E entrance point of the sound.

9.17 Porsangen (70˚30'N., 25˚30'E.), a long fjord, is entered between Helnes Light and Svaerholtklubben, about 10 miles ESE, and extends about 65 miles in a SSW direction. The outer part of the fjord is fringed with precipitous and barren tableland but toward the inner end the heights are more irregular, with some trees and pasture land.

Though not as deep as many fjords, it is fairly clear of dangers except near its head, where there are scattered shoals and numerous islands. The fjord is usually frozen over in winter as far N as Borselvenes, a point about 16 miles from its head. Porsangen is well-marked by navigational aids, which can best be seen on the chart.

Store Tamsoy, an island, is located about 25 miles from the entrance of the fjord, and is encumbered by a rocky shoal which extends up to 1.5 miles S of the island. Two spar buoys mark the shoal on the E. A beacon is shown on the SE side of the island.

Strandbukt, a bay, lies on the W side of the outer part of Porsangen and is entered between **Homnneset** (70˚45'N., 25˚42'E.) and Nakken. The bay affords good anchorage to vessels with local knowledge, in a depth of about 23m, good holding ground, about 2 miles WSW of Repvag Light.

Vessels with local knowledge may obtain anchorage off the SW side of Litle Tamsoy, in depths of 11 to 12.8m, about 3 miles E of Repvag Light.

There are a number of anchorages on both sides of Porsangen and also at the head of this fjord. All of these anchorages require local knowledge and are best seen on the chart. The anchorages are used mainly by coastal vessels.

Laksefjorden lies E of Porsangen and is entered between Svaerholtklubben and Finnkjerka, 8.5 miles to the E. The fjord indents the coast for about 40 miles and for the most part is from 7 to 12 miles wide. The shores of the fjord are indented by a succession of small bays and inlets.

In Laksefjorden, the tidal current sets N with the falling tide and S with the rising tide. The maximum velocity is attained at the entrance to the fjord.

9.18 Kjollefjorden (70˚57'N., 27˚20'E.) (World Port Index No. 20740), on the E side of the entrance to Laksefjorden, is entered through a width of about 3 miles and extends about 4 miles SE. The head of the fjord forms a sheltered bay, where there is a settlement. Coastal vessels call here regularly.

The port has a number of quays, with depths of up to 4.9m alongside. Vessels with local knowledge can obtain anchorage, in a depth of 20 to 23.8m, in the middle of the harbor, about 0.2 mile E of Kjollefjorden Light. The anchorage is not safe during strong E winds, when violent squalls occur.

Oksefjorden is entered N of Kjollefjorden and indents the coast for a distance of about 7 miles. The fjord is deep and clear of dangers, except for scattered shoals, which are best seen on the area charts.

Small vessels can find good anchorage, in 7.3 to 14.6m, off the village of Oksevag at the head of the fjord. The fjord is well marked by navigational aids. Coastal vessels call here regularly.

Friarfjorden (70˚28'N., 26˚57'E.), located at the SE end of Laksefjorden, affords good anchorage for vessels with local knowledge, in depths of from 22 to 33m, good holding ground, on the W side of the fjord.

A number of anchorages are located on both sides of Laksefjorden, most of which require local knowledge, and can best be seen on the chart. The anchorages are used regularly by coastal vessels.

9.19 Mehamnfjorden (71˚04'N., 27˚52'E.) is located on the mainland and lies between Laksefjorden and Tanafjorden. Mehamn, on the E side of the head of Mehamnfjorden, is one of the best harbors in this area, and is accessible in almost all conditions. Vessels can anchor, in depths of up to 13.7m, loose clay, about 0.4 mile SSE of Mehamn Light. There are mooring rings around the harbor. The E shore of Mehamn is lined with quays, of which the three N quays have depths of 5.5 to 7.9m alongside.

Slettnes Light (71˚05'N., 28˚14'E.) is shown from a prominent tower, 39m in height, standing on a headland about 8 miles NE of Mehamn. A racon is located at the light.

A shoal bank extends seaward up to about 2 miles from the light and breaks in places during heavy weather. Gamvik, a fishing harbor suitable only for small vessels, lies close SE of the light tower.

Tanafjorden (70˚45'N., 28˚25'E.), which is entered between Omgang and Tanahorn, about 9 miles SE, extends SSW for about 34 miles on the W side of Varangerhalvoya. The shores of this fjord are mountainous declivities, indented, and made up of small inlets, especially on the W side.

The principal branches of Tanafjorden are Hopsfjorden, Langfjorden, and Vestertana, which extend in a W and S direction from the main fjord.

In the area outside the entrance to Tanafjorden, the depths decrease sharply on both sides of a deep channel, which is an extension of the fjord. During fair weather conditions, the current goes inward with the rising tide and out along the E side of the fjord with the ebb. Wind and the outflow of water

from Tanaelven (Tana River) can also have a big influence on current conditions.

Due to the situation mentioned above, it is difficult to predict wave conditions. However, with waves from the NW and an outgoing current along the E side of the fjord, there is a possibility of breaking waves. These are seen as areas of broken surf and it is estimated that vessels must be 6 to 10 miles outside the fjord mouth to avoid them.

Hopsfjorden lies on the W side of Tanafjorden. The fjord is deep and free of dangers in the fairway. Large vessels can anchor near the head of the fjord. Langfjorden lies S of Hopsfjorden and also affords anchorage for large vessels near its head. Small vessels lie best in the bay at Boksjok, where there is good holding ground, in a depth of about 20m.

A submarine cable crosses the fjord about 2 miles from the entrance.

Gulgofjorden (70˚41'N., 28˚36'E.) lies on the E side of Tanafjorden, about 5 miles ESE of the E entrance point of Langfjorden. This small fjord indents the coast for a distance of about 2 miles. Anchorage can be taken off the N shore of the fjord, in depths of 10 to 18.3m, sand and mud.

The head of Tanafjorden consist of a number of small fjords and inlets, which are marked by lights. There is anchorage in these fjords, which can best be seen on the chart.

Between Tanahorn and Vardo, about 53 miles SE, the coast presents the appearance of a nearly horizontal ridge about 122 to 152m high. Between these two points there are no landmarks; neither does the aspect of any particular tract serve as a guide. The general appearance of the countryside is barren; hardly a trace of soil or vegetation is visible on the tablelands, and fresh green grass is only found in the clefts of the hills facing the sea. In summer, patches of snow may often be seen on the hills. Vessels are advised to give this part of the coast a wide berth in bad weather.

9.20 Berlevag (70˚52'N., 29˚06'E.) (World Port Index No. 20710) lies about 6 miles E of Tanahorn and is one of the largest fishing stations on this part of the coast. The entrance to the harbor is protected by a mole. The port consists of an outer harbor and an inner harbor.

There is anchorage in the outer harbor, in depths of from 9.1 to 12.2m; the inner harbor anchorage has depths of up to 4.6m. A number of quays in the harbor have depths of up to 4.9m alongside.

Kjolnes Light (70˚51'N., 29˚14'E.) is shown from a tower, 22m in height, standing 2.5 miles E of Berlevag. A racon is located at the light tower.

Kongsfjorden (70˚45'N., 29˚24'E.) is situated about 9 miles SE of Berlevag. The fjord is divided into two arms by a peninsula. The fjord affords anchorage for small vessels, in depths of 12 to 16.5m, good holding ground.

A number of dangers lie in the fjord and can best be seen on the chart. The harbor is protected by a mole; however, swells comes in during NE winds. Vessels are cautioned to be well secured.

Batsfjorden (70˚41'N., 29˚51'E.) lies about 7 miles E of Kongsfjorden. The fjord extends about 7 miles SW and is deep and free from dangers. A cove at the head of the fjord affords anchorage to small vessels with local knowledge, in depths of from 18.3 to 23.8m, good holding ground, about 183m W of the N entrance point of the cove.

The harbor in the cove has been dredged to a depth of 4.9m; the quays in the harbor have depths of 4.9 to 7.3m alongside. Maritbukt, the head of Batsfjorden, is the most spacious anchorage, with depths of 11.9 to 14.0m, good holding ground, about 1 mile SW of Batsfjorden Light.

There are 13 berths at Maritbukt with lengths of 32 to 273m, and depths of 3 to 10m alongside. Two new berths are under construction. A number of lights, which are best seen on the chart, are located in the fjord.

Makkaur Light (70˚42'N., 30˚05'E.) is shown from a low tower on a building standing about 4 miles E of the entrance to Batsfjorden. A racon is located at the light tower.

Syltefjorden lies 12 miles SE of Batsfjorden. It extends about 8 miles SW and is free from dangers in the fairway. The head of the fjord is frozen over in winter. Syltefjordvaer, on the NW side of the fjord, affords anchorage close inshore to small vessels, in depths of from 4.6 to 6.1m, about 3 miles NE of Sylefjorden Light.

Small vessels can also anchor near the head of Syltefjorden, in depths of from 14.6 to 20m. Nordfjorden, lies 3 miles SW of Syltefjordvaer, on the W side of the fjord and is protected by two moles. A light stands on the W mole head. Small vessels can anchor W of a spar buoy, located at the head of Nordfjorden, in 19m.

Persfjorden (70˚26'N., 30˚48'E.) is located about 10 miles SE of Syltefjorden. The fjord is free from dangers in the fairway, and depths decrease gradually toward its head. Anchorage can be obtained in the fjord in fine weather, but vessels cannot remain there during winds from NW, through N, to E.

Caution.—In the stretch between Batsfjorden, from Makkaur Light to Vardo and Varangerfjorden, lies an area very exposed to bad weather. With the wind mainly from the N, waves drive in from seaward. In Varangerfjorden, the currents are erratic and with the "corner effect" at Vardo, the sea becomes more chaotic.

Vardo

9.21 Vardo (70˚22'N., 31˚07'E.) (World Port Index No. 20700) is composed of a group of islands lying close off the E extremity of Varangerhalvoy, about 7 miles SE of Persfjorden. Vardoya, the W and largest island, consists of two parts joined by a narrow isthmus.

Reinoya and Horwoya lie close to the E of Vardoya. Bussesundet, to the W of the islands, separates them from the mainland and can be navigated by large vessels.

Aspect.—Vardo church, conspicuous from the N, is white with a gray roof and white spire. A radar dome stands about 183m E of the church. Two radio masts stand on the island of Vardoya, about 0.25 mile W of the church.

Vardo Light is shown from a tower 20m in height, standing on Hornoya.

Pilotage.—Pilots for Vardo are stationed at Kirkenes. Vessels at sea requiring a pilot should give at least 24 hours notice, notifying confirmation or alteration at least 2 hours before the original time stipulated.

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Nordvagen, the principal and best harbor at Vardo, lies on the N side of the town. The anchorage is good but constricted being available only to small vessels with local knowledge. During N gales, there is considerable swell in the bay N of the moles, and entering the harbor may be difficult.

Protection is afforded to the harbor by a breakwater on each side of the entrance. A light is shown from the seaward end of each breakwater.

Steamship Quay, the main berth lies on the W side of the harbor and is 158m in length, with depths varying from 6.4m at the mouth end to 6.1m at the S end at LW. The quays on the E side of the harbor have depths of up to 4.5m alongside.

Caution.—An Explosives Dumping Area lies close E of the Vardo Light and may best be seen on the chart.

9.22 Bussesundet (70˚22'N., 31˚02'E.), somewhat exposed to swell from both N and S, affords good anchorage to small vessels off the S end of Tjuvholem, in depths of from 7 to 10m, about 183m N of a line of buoys marking a pipeline.

Two moles form a harbor in the S part of Bussesundet. A light is shown from the seaward end of each mole. The entrance to the harbor has a least depth of 6.7m, decreasing shoreward into drying flats. Several piers are situated in the S part of the harbor.

There is a prohibited anchorage in the S part of Bussesundet, best seen on the local chart. Vessels arriving at the harbors without an anchoring or mooring berth allocated must anchor well out of the way until a berth is assign by the harbor authority. Under no circumstances may vessels anchor in the channels or near the piers, so as to impede traffic.

Vessels arriving at the harbors under quarantine flag, or which are ordered to lay in quarantine, must anchor in Bassesundet, where they must remain until the health authority gives them orders to go to another anchorage or mooring berth in or outside the harbor.

Varangerfjorden

9.23 Varangerfjorden (70˚00'N., 30˚00'E.), a large and deep fjord lies with Kibergneset, its N entrance point, about 5 miles S of Vardo. The fjord extends about 50 miles W, and is free from dangers in mid-channel to a distance of about 7 miles from its head. The best harbors will be found in the inlets on the S side of the fjord, which is characterized by steep hills with sparse growths of trees. In contrast, the N side of the fjord slopes gently inland, with steep cliffs of irregular heights in places.

The tidal currents in the fjord are very irregular. Their direction is largely influenced by the prevailing winds, rather than by the tides. The more usual characteristic is a W set on the N side of the fjord and an E set on the S side, on change in direction occurring at HW or LW. The E set will usually be stronger than the W and may attain a velocity of about 2 knots, with heavy overfalls occurring particularly during strong E winds.

The N shore of Varangerfjorden is formed by the SE and S coast of Varangerhalvoy and is better protected against N gales than the E and N coast of the peninsula. Between Kibergneset and Vadso, 30 miles WSW, the coast is generally low and flat, forming open shallow bays bounded by white sandhills.

Ytre Kiberg (70˚17'N., 31˚00'E.), a small harbor about 2 miles W of Kibergneset, is available to small vessels with local knowledge. It is exposed to E winds, during which anchorage is not recommended, though there is good holding ground of sand and mud. A light is shown from the head of the harbor, and range lights in line lead into the inner harbor.

Coastal vessels call at the port, which is a fishing station. Storskjer, an above-water rock showing a light, lies about 3 miles SW of Ytre Kiberg Light. Shoal water, marked by beacons and iron posts, lies from Storskjer NE to Ytre Kiberg.

Komagneset, terminating in a point about 13 miles WSW of Kibergneset, is a high plateau with three prominent ridges between its summit and the sea; about 5 miles SW of these ridges is Skallneset, another prominent point.

Small vessels with local knowledge can anchor in good weather off Komagneset, in depths of up to 6.1m.

9.24 Litle Ekkeroya (Lille Ekkeroya) (70˚05'N., 30˚14'E.), a small island fringed with reefs, lies about 4 miles SW of Skallneset. Vessels entering Varangerfjorden in foggy weather must be careful to identify Skallneset, as its long flat projecting point may easily be mistaken for either Litle Ekkeroya or Store Ekkeroy. Litle Ekkeroya shows a light on the SE point of the island.

It has been reported (1994) that numerous shoals and wrecks exist in close proximity, NW to SW of Litle Ekkeroya Light.

Store Ekkeroya lies about 3 miles SW of Litle Ekkeroy and is connected to the mainland by a narrow, low isthmus. Store Ekkeroya is higher than the mainland and when seen from a distance appears as an island. On its summit is a tall black beacon; a second black beacon stands on its E extremity. A light is shown on the seaward end of a mole on the SW side of Store Ekkeroya.

9.25 Vadso (70˚04'N., 29˚44'E.) (World Port Index No. 20690) is located on the N side of Varangerfjorden, about 15 miles NW of Kirkenes pilot station. The port is protected on its S side by the W part of Store Vadsoya, a low barren island lying on a coastal reef, and on its W side by a two breakwaters, one extending about 0.2 mile NNW from the W extremity of the island and the other extending about 91m S from the mainland.

The channel leads along the N side of Store Vadsoya and has a least depth of 6.2m. A bridge, with a vertical clearance of 3m, extends N from Vadso to the mainland. The harbor is seldom ice-bound; however it is not recommended to enter the harbor during strong N or S winds. Navigational aids can best be seen on the chart.

It has been reported (1995) that a 475m long channel, with a width of 180m and a dredged depth of 6.5m, leads from the outer harbor to the inner harbor.

Depths—Limitations.—The main pier extends W from a point S of the town. The pier is about 107m long, and accommodates vessels drawing up to 7.3m. Between this pier and the town are numerous quays and jetties, 65 to 300m long, with depths of from 3.3 to 7.5m alongside. Coastal vessels call regularly at the port.

Pilotage.—Pilots for Vadso are reported available at Kirkenes. Contact the control center at Lodingen for harbor pilots. Vessels desiring a pilot should give 24 hours notice,

confirmation should be made 2 hours prior to arrival at pilot station Vadso.

Anchorage.—Anchorage for vessels up to 400 tons is available in the basin, in depths of 4 to 6m. Larger vessels can anchor W of the mole, in depths of 16 to 21m, sand and clay. Anchorage is also available in the outer harbor inside the breakwater, in depths of 5 to 9m.

Small vessels can obtain anchorage E of the town, in depths of 4 to 5m, about 1.0 mile ENE of Vadsoya Light, it is approached E of Store Vadsoya.

9.26 Sandskjer (70˚05'N., 29˚33'E.), about 2 miles WNW of Lille Vadsoya and about 0.5 mile offshore, is a skerry fringed by a drying reef. It is marked by a black beacon tower. Vestre Jakobsely, about 5 miles WNW of Sandskjer, is a fishing harbor,with two short moles, at the mouth of a river. A light is shown at the head of the W mole.

Mortensnes, a village, lies 6.5 miles WNW of Veste Jakobselv. A light is shown from a point close SE of the village.

Meskfjorden (70˚10'N., 28˚40'E.), an inlet lies on the N side of the head of Varangerfjorden, has a narrow entrance which is encumbered with dangers and has very strong tidal currents. The N and deeper channel leading into the inlet has a least depth of 4.9m. The fjord is ice-bound from October to May. Leading lights to the fjord stand on the N shore, close W of the entrance.

Small vessels with local knowledge can obtain anchorage off the N shore of the fjord, 1 mile W of the rear leading light, in a depth of about 15.2m.

Karlebotn (70˚07'N., 28˚45'E.) lies on the S side of two inner fjords of the head of Varangerfjorden. Anchorage can be obtained on the NW side of Karlebotn, about 0.5 mile ENE of Rabbedalen, in depths up to 27.4m.

Small vessels obtain anchorage off **Bigganes** (70˚07'N., 28˚36'E.), a village on the NW side of the head of Karlebotn, in a depth of about 12.8m, about 2 miles WSW of Rabbenes light.

South Side of Varangerfjorden

9.27 Veinesbotn (70˚05'N., 28˚47'E.) is an inlet on the S side of Veidnes, a peninsula which separates it from Karlebotn. A light is shown on the N entrance point of the inlet. There is a small, but very good harbor for small vessels off Grasbakken, a village on the S side of the entrance to Veinesbotn. The anchorage has depths of up to 15.2m; the holding ground is good. A quay at the village has a depth of 6.4m alongside. A light is shown from a rock off the village.

Latnaeringen, a promontory, lies about 6 miles E of Grasbakken. There is anchorage for small vessels with local knowledge on the W side of the promontory, in depths of 10.1 to 15.8m. Vessels approaching this anchorage should be careful to avoid the foul ground, marked by a light, on the outer end of which is Storskjaer. The anchorage is sheltered from E winds, but is not recommended during N and W winds.

Bugoyfjorden (69˚56'N., 29˚36'E.) lies about 14 miles SE of Latnaeringen. In winter, the fjord is ice-bound up to about 1 mile from its head, but it freezes farther out in hard winters.

The SE side of the fjord consists of steep hills and is uninhabited; the NW side is lower and has some settlements and harbors. On the S side of the entrance, a group of islets and rocks lies close offshore. At the N end of this group an above-water rock is marked by a lighted beacon. The tidal currents in the fjord are weak and usually set outward.

Between the W side of Bugoya and the mainland, there is a harbor where small vessels can anchor in depths of up to 3.7m.

The harbor is protected from the N by two short moles. A light is shown on the head of the W mole. The sea breaks in the N entrance to the harbor if there is a swell.

9.28 Kjofjorden (69˚50'N., 29˚47'E.), a long fjord on the W side of the island of Skogeroy, can be navigated by large vessels. The shores of the fjord are high, rocky, and barren for some distance inland, but have a less rugged character near Neidenfjorden, which continues from Kjofjorden to the S.

In hard winters, the fjord may be ice-bound; however ice-breakers usually keep a channel open from Kirkenes to Neiden, a town on the W side of Neidenfjorden. The tidal current runs very strong between Korstjorden, a fjord on the SE side of Skogeroy and Neidenfjorden.

The fairway in Korsfjorden is nearly free from dangers within the entrance, but strong squalls occur in the N part of Kjofjorden during W winds. The fjord is well marked by navigational aids. Neidenfjorden extends about 4 miles SSW from the S end of Korsfjorden; Munkefjorden continues SSW for 3 miles.

Anchorage.—Brashamn, a small landlocked harbor, lies about 1 mile within the W side of the entrance to Korsfjorden and is suitable to small vessels with local knowledge. Vessels with local knowledge can anchor on the W side of Neidenfjorden in a position about 1 mile SW of Skogeroypynten Light. Vessels should not anchor in depths of less than 24m in order to swing clear of the drying shore reef.

There are a number of other anchorages in the fjords, which can best be seen on the chart.

Bokfjorden (69˚50'N., 30˚07'E.) is entered between Bokfjorden Light and the NE point of the island of Kjelmoy, 2 miles to the W. The fjord extends about 9 miles S to a promontory on which stands the town of Kirkenes, where it divides into Elvenesfjorden and Langfjorden.

About 4 miles within the entrance to the fjord lies Korsfjorden, which branches WSW for about 9 miles on the S side of Skogeroy to a junction with Kjofjorden and Neidenfjorden. The above fjords are well marked by navigational aids, which can best be seen on the chart.

Bokfjorden Light (69˚53'N., 30˚11'E.) is shown from a tower, 10m in height, standing on Hungerneset. A racon is located at the light.

Anchorage.—Good anchorage for large vessels is obtainable at the entrance to Langfjorden, SW of Kirkenes. Depths up to 37m are found in this anchorage. Small vessels can anchor in Soldaterbukt, in depths of 9.1 to 14.6m. This small bay lies between the SW side of Prestoy and the mainland to the W.

9.29 Kirkenes (69˚44'N., 30˚03'E.) (World Port Index No. 20650) lies at the head of a promontory separating Elvenesfjorden and Langfjorden. The harbor is used mainly for the loading of iron ore.

Pilotage.—There is a coastal pilot station at Kirkenes. The lookout station for the pilots is off **Oksebaasen** (69˚51'N., 30˚07'E.). Vessels at sea requiring a pilot should give at least 24 hours notice, notifying confirmation or any alteration at least 2 hours before the original time stipulated. Contact can be made via VHF channel 16. Pilots are compulsory.

Depths—Limitations.—Large vessels of unlimited draft can enter the harbor. Vessels up to 171m in length and drawing up to 9.4m can berth at the harbor. Bulk ore carriers of 120,000 dwt and having a maximum draft of 15.5m, a maximum air draft of 13m, and a maximum length of 303m, can be accommodated.

Under normal conditions, oil carriers of 20,000 dwt and having a draft of 10m can be accommodated.

Berthing facilities are, as follows:

Quay No.	Length	Depth
1	40m	7.0m
2	104m	7.0m
3	10m	4.2m
4	50m	6.0m
5	60m	4.7m
6	177m	13.1m
7	110m	9.0m
8	59m	9.0m

Anchorage.—Vessels waiting to load ore can anchor in the entrance to Langfjorden, about 0.5 mile W of Kirkenes church, in a depth of about 33m.

Leading lights, when in line bearing 208˚, lead to this anchorage. There is also anchorage 0.15 mile NE of a mud pipeline, in a depth of 27m, close off the harbor.

Caution.—It is necessary that vessels lying in the harbor at Kirkenes should pay attention to the breaking up of ice at the end of the winter. Spring tides and a S wind clear ice from the harbor, but it is considerably later before the main ice from the head of Elvenesfjorden drifts seaward. If at anchor, drifting ice may cause a vessel to drag anchor. A vessel moored to a quay should be moored flush against the berth to prevent ice from lodging between the ship and the quay, which could carry away her hawsers.

9.30 Holmengrafjorden (69˚51'N., 30˚19'E.), the entrance of which lies about 4 miles ESE of Bokfjorden, is entered between Jarfjordennes and Trifannes, about 1 mile NNW. A shoal, which dries, lies about 0.2 mile N of Trifannes and is marked by an iron perch. Holmengraholmen lies in the fairway of the fjord about 2 miles W of Jarfjordnes.

Anchorage is available in mid-channel 0.2 mile from the head of the fjord, in 29 to 37m, good holding ground. The best anchorage for small vessels with local knowledge is in Innerhamn, on the SE side of the fjord, in a depth of about 20m, good holding ground.

The fjord trends S for about 9 miles to Kjerrisneset, then WSW for 3 miles. In winter, ice usually lies from the head of the fjord to Kjerrisneset. Jarfjorden Light is shown from a pedestal on the E side of the fjord, about 0.5 mile SSW of the E entrance point. A vessel entering Jarfjorden should keep nearer the W side of the fjord to avoid the dangers on the E side of the entrance.

The best anchorage in Jarfjorden is in Lanabukt, the inlet E of Hinnoy, where there are depths of 20 to 24m. The inlet is free of ice and is a port of call for coastal steamers. Small vessels with local knowledge can anchor near the head of the fjord, off Jarfjordenbotn, in depths of up to 22m.

Sagfjorden (69˚49'N., 30˚32'E.) lies about 3 miles E of Jarfjorden and is entered between Sagfjordenneset and Koljeneset. An unmarked rock, with a depth of about 1m, lies in this narrow channel 0.5 mile WSW of the entrance.

Anchorage is available for small vessels with local knowledge in summer near its head, about 1 mile within the entrance, but is seldom used.

Pasvikhamn (69˚49'N., 30˚35'E.) lies about 1 mile E of Sagfjorden, and is entered between Dodesneset and Vardeneset. The harbor is good at all times of the year for vessels with local knowledge. Anchorage is available, in depths of up to 33m, about 1 mile within the entrance. A swell occurs within the inlet during NW winds. There is an islet and rocks, awash, on the SW side of the entrance. A vessel entering the inlet should pass E of the islet and rocks. A black beacon stands on Vardeneset.

9.31 Ytre Smastraumneset (69˚48'N., 30˚41'E.) lies about 2 miles E of Pasvikhamn and affords anchorage in summer to small vessels with local knowledge, in depths of 11 to 15m, clay. There are mooring rings on both sides of Ytre Smastraumneset.

Kobbholmfjorden (69˚47'N., 30˚44'E.) lies about 2 miles SE of Ytre Smastraumneset and is entered by passing between **Heikeneset** (69˚48'N., 30˚44'E.), and Ytre Kobbholmen Light.

A number of islets and rocks lie on the NE side of the fjord and can best be seen on the chart.

Small vessels with local knowledge can anchor in Storbukt, on the W side of the fjord, in depths of up to 45.7m, about 183m offshore. Vessels are advised to secure to the shore due to rapidly increasing depths.

Anchorage is also available on the SE of the fjord in Fabrikkbukt, in depths up to 44m, about 2 miles SE of Storbukt.

Jakobselv (69˚47'N., 30˚50'E.), a river, the mouth of which lies 8.5 miles E of Jarfjorden, flows from lakes and marshes 40 miles inland. Grense Jakobselv is a village on the left bank of the river near its mouth. The alignment of two lighted beacons, bearing 208˚ and situated on the W bank of the river, indicates the seaward section of the boundary between Norway and Russia. A white stone building with a tower stands on the W side of the mouth of the river and is conspicuous from seaward for a considerable distance.

There is a black buoy moored about 0.2 mile N of the mouth of Jakobselv. It also marks the frontier of Norway.